ASPHALT EMULSION AGGREGATE MIX DESCRIPTIONS

New Pavement

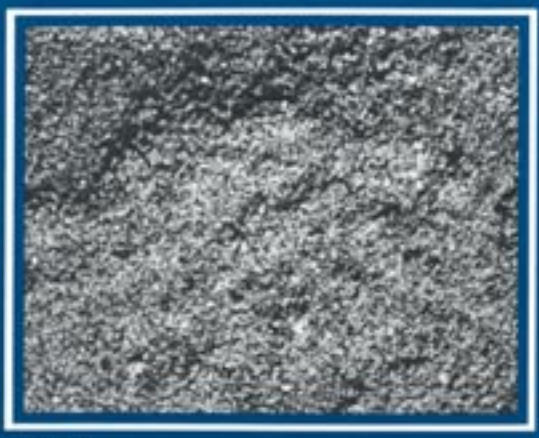
ASPHALT EMULSION AGGREGATE MIXES

Asphalt emulsions have long been used as binders in mixes for pavement construction, rehabilitation, and maintenance.

Where appropriate, emulsion/aggregate mixes can provide important advantages:

(1) Strengths comparable to hot mix.
(2) Ability to use damp aggregates.
(3) Versatility as a variety of asphalt emulsions are available for different aggregates and conditions.
(4) Economical as equipment investment is modest.
(5) Energy and fuel savings since the aggregate normally is not heated or dried.
(6) Low or non-polluting since no smoke is produced from heating or drying.

The following are descriptions of various asphalt emulsion/aggregate mixes available. For additional and more detailed information, please refer to the AEMA Recommended Performance Guidelines.



Sand

Dense-graded

Open-graded

AGGREGATE GRADATIONS

Many aggregates can be used with asphalt emulsions. The four types commonly referred to are:

Soil: Native materials with no gradation guidelines existing.

Sand: A fine gradation of material passing the No.4 sieve.

Dense-Graded:
Typically having a variety of aggregate sizes with the largest being at least $^3/_8$ inch and containing a significant amount of fines.

Open-Graded:
A coarse aggregate gradation with fewer sizes and little, if any fines. The largest aggregate is at least $^3/_8$ inch.

These aggregates differ by gradation and will determine the type and amount of asphalt emulsion used in the mix.

The compatibility of the asphalt emulsion with project aggregates should be confirmed with your AEMA emulsion supplier.

Travel Plant

MIXED IN-PLACE

Mixed in-place cold mix construction implies that mixing equipment is brought onto the roadway surface and asphalt emulsion is mixed into the soil or aggregate on that surface.

A. Travel Plant

A travel plant is a self-propelled pugmill that accurately proportions and blends aggregates with asphalt emulsion in-place. The travel plant receives aggregate into a hopper, blends in the emulsion, and spreads the mix into a finished mat at the rear of the machine.

ADVANTAGES: The most efficient control and best finished pavement of the mixed in-place procedures.

LIMITATIONS: Equipment availability.

Rotary Mixer

Blade Mixing

MIXED IN-PLACE

continued

B. Rotary Mixer

A rotary mixer consists of a mixing chamber mounted on a self-propelled machine. The mixing chamber cuts into the soil or aggregate base while simultaneously mixing in asphalt emulsion from a supply source.

ADVANTAGES: Reasonably efficient mixing with improved emulsion quantity control. A good system for low volume applications.

LIMITATIONS: Controlling depth of mixing.

C. Blade Mixing

Blade mixing consists of applying asphalt emulsion to either the aggregate on the surface or in a windrow. Motor graders perform all mixing and placement of the finished mix.

ADVANTAGES: An inexpensive and simple mixing procedure.

LIMITATIONS: Least efficient mixing method with poorest controls. A highly skilled operator is a must for reasonably consistent thickness, appearance, and ride.

Cold Mix Plant

Hot Mix Plant

PLANT MIX

Plant mix is manufactured at off-site facilities for higher production rates and improved control of material proportioning and mixing. The mix is loaded into trucks and transported to the jobsite for placement. Self-propelled paving machines are typically used with plant mix, thus the finished pavement is usually high quality with improved ride. Blade placement may also be used.

A. Cold Mix Plant

A typical cold mix plant consists of a portable pugmill (mixer), aggregate storage and feed hopper, and other support equipment.

ADVANTAGES: Excellent mixing and material control. Useful for large projects, high traffic, or heavy load cold mix pavements. Easily moved or transportable.

LIMITATIONS: Equipment availability.

B. Warm/Hot Mix Plant

Asphalt emulsion warm and hot mix is manufactured through an asphalt hot mix plant, either a batch or drum type.

ADVANTAGES: High mix production rates, accurate control of materials, and faster mix strength development.

LIMITATIONS: Equipment availablity

Patching Mix

Stockpile Mix

Asphalt Emulsion Aggregate Mix Descriptions is intended as a guide to briefly explain the mixes available. It is not intended as a selection guide since there are other factors to consider in determining the most appropriate application. For further information, please consult the Recommended Performance Guidelines published by the AEMA or contact your local AEMA member company.

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